HANDS-ON LEED: GUIDING COLLEGE STUDENT ENGAGEMENT
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INTRODUCTION

Gaining valuable insights from students on how facilities and grounds are used, while actively engaging them in efforts to establish a culture of sustainability, is fundamental to the success of any green campus initiative.

As college and university leaders from across the United States work to green their campuses, students can and should play a critical role. Institutions of higher learning are developing and implementing comprehensive sustainability plans that not only focus on the life cycle of buildings, grounds and infrastructure, but incorporate research objectives, advocacy efforts and curriculum development that support academic and mission-based sustainability goals. There are numerous benefits to engaging students in these efforts, including the opportunity to significantly reduce overall costs.

The U.S. Green Building Council (USGBC®) launched the Green Campus Campaign with the goal of establishing a green campus at every college and university within this generation. To meet the campaign’s objectives, the Center for Green Schools at USGBC is working in partnership with administrators, staff, faculty and students from across the country to strengthen sustainability efforts in the following ways:

- Providing direct assistance to leadership, capital planning departments and facilities staff on how to develop, implement, operate and maintain a green campus
- Demonstrating how the LEED® green building rating systems can be utilized as a tool for green planning and implementation
- Supporting student leadership and green building advocacy efforts
- Encouraging the incorporation of sustainability concepts into relevant course curricula, research initiatives and community partnerships

USGBC has developed many tools and resources to help in this process, including the Roadmap to a Green Campus, the Paid-from-Savings Guide to Green Existing Buildings and project profiles showcasing best practices. Hands-On LEED focuses exclusively on the role of students and explains how they can be involved in green campus projects and contribute to LEED certification efforts. The guide outlines three options for engaging students: coursework, internships and volunteer opportunities. It details the benefits of
involving students and outlines ways to initiate the process of developing an engagement program, such as planning considerations and LEED-related activities and tasks that students can perform. The guide also contains profiles of three campuses that are engaging students on green campus projects with great success.

What is LEED?

LEED is an internationally recognized green building certification system, providing third-party verification that measures how well a building or community is designed, built and operated for performance across the metrics that matter most:

- Impact on the land
- Energy savings
- Water efficiency
- CO₂ emissions reduction
- Improved indoor environmental quality
- Stewardship of resources

LEED provides building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions. It is developed through a broad-based consensus process driven by USGBC member organizations, which include nonprofit organizations, government agencies, architects, engineers, developers, builders, product manufacturers and other industry leaders. LEED has grown from one rating system for new construction to a suite of rating systems that address the complete life cycle of buildings.

LEED Addresses the Complete Life Cycle of Buildings
There are over 4,300 higher education institutions in the United States today, with more than 83,000 existing buildings, totaling 3.48 billion square feet. Many colleges and universities use the LEED® for Existing Buildings: Operations & Maintenance™ (LEED for Existing Buildings: O&M) rating system to improve facilities performance and guide campus-wide sustainability planning and implementation. The rating system’s focus on upgrading building systems to improve energy efficiency, adopting green operations and maintenance best practices, coordinating procurement efforts and establishing alternative transportation plans provides institutions an opportunity to utilize in-house staff and students to develop and implement LEED for Existing Buildings: O&M project plans.

The Role of the Integrated Design Process in LEED Projects

The integrated design process is a critical component of LEED projects. It brings together stakeholders, including administrators, capital planning and facilities staff, architects, systems engineers, faculty, students and community partners to work collaboratively to design and implement a LEED project. The participation of these stakeholders early in the process helps to secure support, outline clear goals and identify successful, cost-effective solutions.

BENEFITS OF ENGAGING STUDENTS ON LEED PROJECTS

Campuses that implement programs to include students on LEED projects create opportunities for faculty to incorporate project-based learning into coursework, provide students valuable hands-on project experience and help the institution lower LEED project costs. Schools can include students on projects seeking LEED certification for a new or existing building, which may include working on early planning or assessment tasks, such as helping to determine which campus facilities are best suited for LEED certification.

Developing Green Job Skills

Students working on LEED projects gain project management, communication and green jobs skills. Through the integrated design approach, students work side by side with practitioners to develop an understanding of the workplace environment. Working on LEED projects also helps students develop skills that will distinguish them as they seek employment in an increasingly competitive job market.

According to a recent study, green building will support nearly 8 million U.S. jobs and pump $554 billion into the economy between 2009 and 2013 — statistics that are encouraging for soon-to-be-graduates seeking green job opportunities.2 The study also noted that over the same time period, LEED-related spending will generate an additional $12.5 billion in GDP, support 230,000 jobs and provide $10.7 billion in labor earnings.


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LEED Project Experience Helps to Distinguish Students in a Competitive Job Market

After helping to lay the groundwork for the Building Sustainability @ Cal Program at the University of California, Berkeley, student interns translated their on-campus experience into green careers, including jobs at the U.S. Environmental Protection Agency’s District 9 Region and energy conservation at Pacific Gas & Electric Company (PG&E).
Obtaining LEED Professional Credentials™

The LEED Green Associate and LEED AP with specialty credentials are offered through the Green Building Certification Institute (GBCI), a third-party organization that manages LEED project certification and administers the LEED Professional Exams™. The LEED Green Associate credential attests to fundamental knowledge and skill in understanding and supporting green design, construction and operations. The LEED AP with specialty credentials signify advanced knowledge of green building practices and specialization in a particular LEED rating system. The LEED Green Associate credential is a mark of recognition for professionals who may not have direct involvement on a LEED project but who work closely with the sustainable building industry in other capacities. Earning a LEED AP with specialty credential requires project experience, which students can gain through active, ongoing participation on LEED-registered projects while in school. As students look for ways to set themselves apart in a competitive job market, the LEED Professional Credentials indicate to the marketplace a clear understanding of green building technology and implementation of LEED.

Driving Down Project Costs

Through class assignments, internships and volunteer programs, students can assist with many of the tasks associated with LEED and help significantly reduce project costs.

Activities can include the following:

- Identifying the campus facilities best suited for LEED for Existing Buildings: O&M certification
- Facilitating design charrettes
- Evaluating current operations and maintenance procedures and policies
- Conducting light, water and waste audits to benchmark a building’s performance
- Creating and administering occupant and transportation surveys
- Researching sustainable strategies and technologies
- Completing LEED documentation
- Planning educational programs to inform students and staff on new sustainability policies and programs

Enhancing the Academic Experience

By incorporating project-based learning into their coursework, faculty can demonstrate how to apply lessons learned in the classroom to real projects. Students are also exposed to a process that embraces collaboration and fosters creativity, and the participating faculty can use field experience to inform their research and keep curriculum current.
Facilitating Community Engagement

The use of many campus facilities extend beyond students, faculty and staff. Community members frequently use sports complexes, gyms, theaters, classrooms and libraries. As stakeholders, they should be invited to participate in the integrated design process to develop and implement LEED projects. Including students on these projects presents an opportunity for the community and students to work collaboratively, creating unique opportunities to foster collegial relationships.

Institutions have an opportunity to share the lessons learned from their LEED projects with those planning community facilities, such as K-12 schools and municipal buildings. Faculty can seek ways to involve students on these off-campus projects, providing opportunities to work on a variety of building types and to strengthen the “town and gown” relationship.

University of Maine at Farmington Uses Green Buildings as a Teaching Tool for the Campus and Community

At the University of Maine at Farmington, the LEED Silver Education and Health Rehabilitation Center is used by faculty and student leaders to coordinate guided tours and to create educational programming. The tours provide an opportunity for University of Maine students and faculty to interact with local K-12 students and other community members. The tours include hands-on activities with building material samples, allowing visitors to become familiar with sustainable products and characteristics of green buildings. Take-away classroom lesson plans and age-specific brochures allow visitors to continue learning after the tour.

Promoting Innovative Teaching

Green building projects are inherently interdisciplinary, bringing together capital planning and facilities staff, various academic departments, students and the community to work toward a common goal. Institutions that promote sustainability through this integrated process can garner a reputation for innovative teaching, helping to attract top faculty and students. Faculty members who have become actively involved in LEED projects report that they are able to bring project experiences into classes, enhancing student learning and interest.
STUDENT SCOPE-OF-WORK ON LEED PROJECTS

With direction from campus faculty, staff or green building consultants, students can work on a variety of LEED-related activities and credits, which are outlined in the following charts.

### General Student Activities
- Facilitate charrettes
- Attend LEED project meetings
- Prepare LEED documentation

<table>
<thead>
<tr>
<th>LEED Credit-Specific Student Activities</th>
<th>Rating Systems</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify and prioritize greening strategies (i.e., policies and plans first, then mechanical upgrades)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>All Credits</td>
</tr>
<tr>
<td>Research green strategies and technologies</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>All Credits</td>
</tr>
<tr>
<td>Develop a plan for building occupants – path to LEED for Existing Buildings: O&amp;M certification</td>
<td>✓</td>
<td>All Credits</td>
</tr>
<tr>
<td>Perform a lighting inventory</td>
<td>✓</td>
<td>EAp1, IEQc2.2</td>
</tr>
<tr>
<td>Perform a landscape inventory</td>
<td>✓</td>
<td>SSc3, SSc5, WEc3</td>
</tr>
<tr>
<td>Develop an occupant education program</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>ID (BD+C/ID+C) &amp; IO (O+M)</td>
</tr>
<tr>
<td>Conduct an occupant comfort survey</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>IEQc7.2 (BD+C/ID+C), IEQc2.1 (O+M)</td>
</tr>
<tr>
<td>Conduct a building assessment</td>
<td>✓</td>
<td>EAp1</td>
</tr>
<tr>
<td>Conduct an energy audit</td>
<td>✓</td>
<td>EAp1</td>
</tr>
<tr>
<td>Complete daylighting and views documentation for spaces</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>IEQc8 (BD+C/ID+C), IEQc2.4 (O+M)</td>
</tr>
<tr>
<td>Perform energy modeling</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>EAp2 (BD+C/ID+C), EAc1(BD+C)</td>
</tr>
<tr>
<td>Research and develop green procurement guidelines/requirements</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>ID (BD+C/ID+C), MRp1 (O+M)</td>
</tr>
<tr>
<td>Assist in developing a building operations plan</td>
<td>✓</td>
<td>EAp1, EAc2</td>
</tr>
<tr>
<td>Input data into ENERGY STAR® Portfolio Manager</td>
<td>✓</td>
<td>EAp2, EAc1</td>
</tr>
<tr>
<td>Research and develop a green cleaning policy</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>ID (BD+C/ID+C), IEQp3 (O+M)</td>
</tr>
<tr>
<td>Develop an education program for staff</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>ID (BD+C/ID+C) &amp; IO (O+M)</td>
</tr>
<tr>
<td>Conduct a waste audit (i.e., dumpster diving)</td>
<td>✓</td>
<td>MRc6</td>
</tr>
<tr>
<td>Establish and manage a recycling program</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>MRp1 (BD+C/ID+C), MRp2, MRc7, MRc8 (O+M)</td>
</tr>
<tr>
<td>Research and develop a solid waste management policy</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>ID (BD+C/ID+C), MRp2 (O+M)</td>
</tr>
<tr>
<td>Assist with occupant and community education</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>ID (BD+C/ID+C) &amp; IO (O+M)</td>
</tr>
<tr>
<td>Prepare a building emissions reduction report</td>
<td>✓</td>
<td>EAc6</td>
</tr>
</tbody>
</table>

BD+C includes the following rating systems: LEED for New Construction, LEED for Schools and LEED for Core and Shell
ID+C includes the following Rating system: LEED for Commercial Interiors
PATHWAYS FOR ENGAGING STUDENTS ON LEED PROJECTS

Three options on how institutions can engage students on green building projects are outlined in the following pages. Each description details planning considerations and outlines information on how to get started.

Three institutions are also profiled to provide concrete examples of successful programs. As the profiles suggest, there is no prescribed formula for engaging students on green building projects; in fact, the universities showcased demonstrate the variety of options available to create a program that dovetails a school’s structure and needs with its campus-wide sustainability goals.
OPTION 1: COURSEWORK

Coursework provides an excellent opportunity for students to participate on LEED projects by linking class assignments to tasks required for LEED certification. LEED concepts can be integrated as a standalone unit within a semester course or can serve as an overarching course theme. Applicable undergraduate and graduate courses can be found within a wide range of academic disciplines and may be offered as electives or required for programs of study.

Faculty members will need to work closely with the LEED project team to coordinate efforts, since it is important to choose assignments that can be aligned with the project plan and completed in the semester timeframe. Monitoring the quality of student work is also essential, since all contributions to the LEED process must be accurate.

Planning Considerations
Types of Courses
There are many types of courses that can incorporate LEED in class assignments. Although building science courses in engineering, architecture, facilities management, interior design and earth sciences are a natural fit, faculty are encouraged to be creative in considering other disciplines that can also sync class work with the needs of a LEED project team. Students in the business school, for example, can track and analyze utility and operational cost savings of LEED for Existing Buildings: O&M certified buildings on campus in order to develop business case studies to support additional campus improvement projects. Communication and art departments can work with the LEED project team to develop occupant manuals, educational materials, and building signage to inform occupants and the community on how to use the LEED-certified building’s green features. Faculty should consider including an introduction to understanding architectural drawings as part of the syllabus to teach non-building science majors the graphical language used in the industry.

Once the course has been established, it is important to promote it appropriately. Faculty can look to existing sustainability groups or clubs on campus, such as USGBC Students, to recruit participants. Faculty may also use social networking or the institution’s sustainability website to post a course description, highlighting the LEED project component.

Sustainability Curriculum Discussion Forums
The Association for the Advancement of Sustainability in Higher Education (AASHE) has several campus sustainability discussion forums, including one dedicated to curriculum development and a second focused on co-curricular activities. Visit www.aashe.org for more information.
Criteria for Student Selection

Because students will be working on projects with significant timelines and budgets, it is important to select students who are motivated and committed to doing quality work. Strong communication skills will be important as many of the LEED project tasks will require working with capital planning departments, facilities managers, maintenance and procurement staff, building occupants and members of the project team. To ensure such criteria are met, faculty may choose to stipulate prerequisites that demonstrate academic excellence and an ability to manage multiple, competing tasks, such as previous coursework, relevant extra-curricular experience or a minimum GPA requirement.

Course Development and Training

Many established campus courses can add a unit on LEED or a course can be developed that concentrates solely on green building certification. Other options include focusing existing seminars, course-credit internship programs, thesis projects and independent study courses on green building. These avenues often have semester- or quarter-long project components that can dovetail with LEED tasks. Adjusting the focus of current courses and programs may prove easier to accomplish than developing and securing departmental approval for a new course. Under all these scenarios, faculty will need to work with the project team to determine the tasks, align the semester schedule with the project timeline and outline assessment and evaluation criteria. Faculty members will develop the curriculum to teach LEED and may consider using project team members or campus staff to participate through guest

Creating Stories from Practice

Developing case studies on green building projects is an effective teaching tool. Students can create detailed profiles on completed LEED projects, or they can use the process to develop case studies to determine if a building is a good candidate for LEED for Existing Buildings: O&M certification.

For a complete project narrative or more information on how to conduct a study, contact greencampus@usgbc.org.

LEED COURSE EXAMPLES

American University
American University offers a course titled Sustainable Design & LEED through its School of International Service. Assignments include students working on LEED project documentation for the University’s Office of Sustainability.

Catholic University of America
Catholic University offers a course titled LEED©ing Green through its School of Architecture. A recent assignment included students analyzing international and domestic airports of various sizes using the LEED 2009 rating systems to determine which LEED certification levels each building could achieve.

Georgetown University
Georgetown University offers a course titled Green Buildings through the Master of Professional Studies in Real Estate Program in its School of Continuing Studies.
lectures, seminars or workshops. Coursework can include creating and evaluating green building and LEED case studies, reviewing the documentation process on hypothetical and actual projects and collecting and analyzing performance data. Tours of other LEED-certified projects will help students understand how LEED is applied. Faculty can also use a variety of USGBC educational resources to support LEED training.

Course Assessment and Evaluation

In order to evaluate student work, faculty will need to monitor student efforts throughout the course to ensure accuracy. Faculty should also set aside time outside of class, such as additional office hours, to answer questions, since most students will be new to project management at this scale and to LEED in general. When developing the evaluation criteria, faculty should consult with the project team to identify deadlines and milestones to help guide the assessment schedule. A final project requirement could include a written report and presentation to the project team, providing an opportunity for team members to critique student work.

USGBC’s LEED Trainings and Publications

USGBC provides a wide range of educational resources and tools to augment in-class learning and support internship training programs. Faculty, internship coordinators and project teams can choose from a variety of offerings, including workshops, online trainings, podcasts, USGBC-approved third-party courses, reference guides and study guides. For more information, visit www.usgbc.org/credentials and www.usgbc.org/LEEDcurriculum.

LEED 201: Core Concepts & Strategies

USGBC’s LEED 201: Core Concepts & Strategies online course is intended for those who want more than a basic understanding of LEED, including those directly involved in green building projects and those pursuing GBCI’s LEED Green Associate credential.

The course provides essential knowledge of sustainable building concepts that are fundamental to all LEED rating systems. It begins with an introduction to the benefits and integrative approach to green building, and a brief background on USGBC and LEED, including the basics of the building certification process. The core of the course presents LEED intents and concepts at the credit category level — across building types and rating systems — touching on strategies, synergies and specific examples that are reinforced through case studies. Visit www.usgbc.org/LEED201online.
How to Get Started

Project teams, sustainability officers, capital planning and facilities management staff may take the lead in seeking ways to include students on LEED projects. In such cases, the interested party will need to reach out to faculty to help determine the courses that can integrate LEED project tasks into the curriculum. In many cases, it will be faculty or students who initiate the effort. To begin, they should convene a meeting with the administration, capital planning, facilities and/or sustainability staff to determine if any LEED projects are planned. If so, faculty members and any teaching assistants should ask to join the LEED project team, or at least participate in critical meetings. One of the first steps will be to establish a communications protocol between the faculty and project team members and to determine the process for identifying the LEED tasks students will be assigned. If there are no LEED projects planned, faculty can assign students the task of identifying buildings on campus best suited for LEED for Existing Buildings: O&M certification.

Evaluating Campus Facilities for LEED for Existing Buildings: O&M certification

Students assigned to determine campus facilities best suited for LEED for Existing Buildings: O&M certification should consider:

- Buildings that will not require major capital improvements in order to meet energy efficiency and water requirements.
- Facilities scheduled for renovation and/or system upgrades that will contribute toward the satisfaction of energy and water requirements.
- Buildings with department chairs and operations staff who are committed to sustainability and willing to work with students.
- Facilities that house one or two departments in order to simplify integrating the various purchasing plans.
- High-profile buildings, such as a library, sports arena, or cultural venue, that can focus attention on the institution’s sustainability efforts and help lay the foundation to support future green building projects.
The Institute for the Built Environment (IBE) was founded at Colorado State University (CSU) in Fort Collins in 1994. It is a multidisciplinary research institute with the mission to foster stewardship and sustainability of the built environment through a research-based, interdisciplinary educational forum. Originally established by faculty in the College of Applied Human Sciences, IBE brings together professionals and students from the related fields of design and construction to solve problems through research related to the built environment. In 2001, IBE was approached by the Poudre School District to assist with its first green school, Zach Elementary. In 2004, the district again sought the institute’s help with the goal of achieving LEED certification for Fossil Ridge High School — the first LEED-certified school in the state. IBE interns, with the guidance of two faculty members, helped the school to achieve LEED certification through activities that included determining which credits were attainable, researching strategies to meet the requirements, incorporating LEED language into the building specifications, conducting credit interpretation research and completing the LEED documentation. The IBE internship program provides a fee-for-service learning model by which students and staff are paid as LEED research consultants. Projects have included university buildings, schools, municipal buildings, commercial buildings and nonprofit facilities such as a children’s discovery center. Since 2001, CSU students who intern for the institute have worked on more than 25 buildings pursing LEED certification.

The majority of student interns are graduate students in construction management, interior design, engineering and landscape architecture, but undergraduates and other disciplines, such as business, communications and the liberal arts, are eligible. Projects are managed by a team consisting of IBE’s executive director, a director of projects, and a project manager. IBE uses the university’s master service agreement as the basis for developing the contract, which includes a comprehensive scope-of-services and a detailed fee structure. Project fees cover the cost of the project director, student interns and the overhead costs for both IBE and the university.

“We have been asked if local green building consultants view the IBE interns as competitors. The answer is no. In fact, one recently encouraged the program’s continued growth, stating ‘Keep doing what you are doing. You are training the students we want to hire!’”

— Brian Dunbar, Executive Director, Institute for the Built Environment, Colorado State University
The project agreement clearly outlines details on student roles and responsibilities to ensure the owner is comfortable with the level of student involvement. The IBE staff and interns are considered members of the LEED project team and are trained on green building and LEED through Department of Construction Management course offerings, including Introduction to Sustainable Design & Construction, Sustainable Technology in the Built Environment, and Facilities Planning and Management as well as mechanical systems and materials classes and design studios. Several of these courses include researching and writing in-depth LEED project case studies as part of the curriculum.

IBE pays its project managers and its interns an hourly rate and charges projects at rates competitive with private consulting fees, so as not to undercut green building industry standards. (Institutions should consult their general counsel’s office to ensure student intern pay is in compliance with university policy.) Local industry consultants have told IBE that they do not see the students as competitors, but rather view the institute as training their future employees. Also, IBE never directly bids for project work.

IBE works on only those projects that foster the integrated design approach, which requires students to participate on the project from the early planning stages. To enhance learning and ensure project continuity, first-year students are paired with second-year students to work on tasks together. The student’s schedule is based on the project schedule, often requiring work during school breaks.

Lessons Learned

- Internships create great learning opportunities for students.
- Only high-performing, motivated students who understand the responsibility of representing the university should be hired.
- The scope-of-services needs to be clearly defined so that the clients understand students are involved in an academic learning experience.
- Project directors need to be experienced, so credentials such as the LEED Green Associate and LEED AP with specialty are recommended.
- Students working on LEED projects have an extremely high pass rate on the LEED Professional Exams.

CSU Students Help Assess the Potential of Buildings to Achieve LEED for Existing Buildings: O&M Certification

Students in the Facilities Planning and Management graduate course performed sustainable facilities assessments and were asked by the city of Fort Collins in the fall of 2008 for assistance in analyzing the potential of an administrative building to achieve LEED for Existing Buildings: O&M certification. In the fall of 2009, the Poudre School District asked for guidance in documenting Kinard Middle School, which was designated as a LEED for Existing Buildings: O&M pilot project. In both cases, students were grouped according to the LEED credit categories (site, water, materials, energy, etc.) and their work focused on collecting and analyzing performance data. Students presented findings and made formal recommendations to the district administration on how to proceed with certification.
OPTION 2: INTERNSHIPS

Internships can help students launch their careers by providing project experience and exposing them to the demands and expectations of the workplace. The programs can be for both graduates and undergraduates, paid or unpaid, and may be the requirement of a specific discipline. Management can be through a campus program or specific to a department. Internships generally require a time commitment of at least a semester and some may last a full year, including summer breaks. Like coursework that engages students on LEED projects, internships require syncing the intern’s academic and work schedule with the LEED project timeline.

Planning Considerations
Criteria for Selecting Students

Selection criteria for interns should reflect the need to identify highly motivated, reliable and committed students. Some universities with current LEED-focused internships use a competitive application process to select students and include such requirements as course prerequisites and relevant work or volunteer experience. Many campuses and departments have established internship protocols — selection criteria, hiring procedures and compensation requirements (if applicable) — that can be modified to accommodate interns working on LEED projects.

Staff Management

Several factors — department structure, experience, budget and schedule — will dictate who on staff will manage the interns. In many cases, an intern coordinator position is established. The coordinator should be part of the LEED project team and have credentials, such as LEED Green Associate or LEED AP with specialty, in order to better assist students. The coordinator’s responsibilities can include the following:

- Identifying qualified candidates
- Training students on the LEED rating systems and certification process
- Supervising and reviewing student work
- Establishing clear communication channels between LEED project team members, students and faculty (if for course credit)
- Implementing a succession plan to ensure project continuity as students complete the internship

Funding Sources for Paid Internships

There are a variety of funding sources available to institutions to help establish a paid internship program for green building projects:

- Capital budgets
- Departmental funding
- Grants
- Student green fees
- Local utility and county grant programs
- Operations and maintenance budgets
- Work-study programs
- Fee-for-service
The responsibilities for supervising the interns should be detailed in the coordinator’s job description and additional time should be allocated to manage students.

**Training**

Most students will not have an in-depth knowledge of green building and LEED and will require training. The successful completion of a green building introductory course could be used as selection criteria for the internship program or for training purposes. The internship coordinator can develop a training program that includes seminars and workshops led by project team members, faculty or guest lectures and tours of LEED-certified buildings. Institutions may also consider covering the exam fees for students interested in pursuing the LEED Green Associate or LEED AP with specialty credentials in order to encourage participation.

**Succession Planning**

Succession planning is a critical component for student internship programs, since building and renovation cycles rarely match any one student’s time at school. Ensuring a smooth transition requires planning and aligning student academic and work schedules with the LEED project timeline. Some universities have found success in pairing students with different graduation dates to work in collaboration on LEED projects in order to provide continuity.

**How to Get Started**

If an established campus internship program is being modified to focus on LEED projects, the current program structure can be changed to accommodate LEED-specific needs, such as including green building coursework as part of the selection criteria, developing training opportunities and identifying an intern coordinator with LEED project experience.

For newly established internships, one of the first steps is to determine if the internship will be designed to meet an academic discipline requirement or be a stand-alone internship unrelated to a specific course or department. The decision will dictate the structure of the internship, such as determining the management and reporting mechanisms, the level of faculty involvement, scope of work, how to select and train students and how to assess and evaluate their work.
The University of California, San Diego, offers students the opportunity to work on LEED projects through two internship programs: one housed in the Facilities Management Department and the other managed through the university’s Green Campus Program—an internship program that promotes facility energy efficiency, green building practices and water conservation on campus and in the community.

In 2007, the University of California’s Policy on Sustainable Practices set the goal of achieving LEED for Existing Buildings: O&M certification for one building on each UC campus. As the administration and faculty were formulating a plan to achieve this objective, a student in the Environmental Systems Program — who was also active in the Green Campus Program — approached her faculty adviser and Facilities staff with a proposal to focus her required year-long project on the LEED certification of a building. It was this student’s idea to consider LEED for Existing Buildings: O&M certification for the Campus Services Complex.

The Campus Services Complex houses three buildings totaling 50,000 square feet, including offices, shops and the university’s fleet garage. It is the first building on the San Diego campus to receive LEED Silver certification under LEED for Existing Buildings v2.0. Student leadership was vital to the success of the effort. The student who proposed the complex and another Green Campus Program intern drove the process to green the facility.

The two students initiated and organized a core group of interns with diverse work experience and academic backgrounds to work together on many aspects of LEED certification. Their efforts helped the project receive an innovation credit for student involvement in the LEED process.

The interns performed many LEED-related tasks:

- Organizing pre-planning activities
- Participating in the design charrette
- Conducting LEED credit research
- Developing a plan for achieving LEED credits
- Planning and monitoring performance periods
- Submitting LEED documentation
- Managing all related follow-up with GBCI
- Organizing long-range planning efforts
- Implementing a long-term monitoring plan to ensure re-certification

“There are many benefits to involving students on LEED projects, but one of the most impressive is the potential to drive down costs. For the Campus Services Complex, students accounted for 86 percent of the total labor hours, helping to lower the overall project labor costs by 30 percent.”

— Dave Weil, Director of Building Commissioning and Sustainability, University of California, San Diego
Students worked closely with an intern coordinator who conducted one-on-one weekly meetings to answer questions and address concerns, monitor the quality of the students’ work and ensure deadlines were met. Weekly project team meetings were also held. For this inaugural effort, most of the LEED training was conducted on the job. Future efforts will include a more formal educational program. Upon completion of the project, interns were encouraged to take the LEED AP with specialty exam.

Lessons Learned

- Strong staff support to supervise and work with interns is critical to the success of the program.

- Because students use the buildings and know the occupants, their involvement can improve the communication between facilities management staff, faculty and building occupants.

- Students bring a fresh perspective and enthusiasm to the certification process.

Student Success Stories

The experience gained from working on the Campus Services Complex helped launch several interns’ careers, including securing positions at the Architect of the Capitol (California), the California Center for Sustainable Energy, and the Natural Resources Defense Fund. The LEED project experience also helped two interns earn their LEED AP with specialty credentials and one is currently working toward her LEED Green Associate credential.
OPTION 3: VOLUNTEER PROGRAMS

Many universities and colleges have active, student-driven sustainability initiatives on campus. The structure and focus of these volunteer groups vary, but many can be tapped to assist on LEED projects.

Volunteer groups can work with LEED project teams on such efforts as conducting waste audits, administering occupant and transportation surveys, implementing the building’s recycling program, and planning and conducting educational programs to inform building occupants about green features. As with coursework and internships, tasks completed by volunteers need to be coordinated with the LEED project timeline.

Planning Considerations
Selection Criteria
Volunteer programs rarely stipulate criteria for participating other than interest and enthusiasm. Volunteers might be looking for short-term opportunities to contribute; others may be willing to commit significant time and energy to long-term projects. For long-term volunteer commitments, institutions may outline student selection criteria and consider preparing an agreement that details the required tasks and specifies the minimum level of commitment required. The selection criteria can include successful completion of a green building course or relevant work and volunteer experience.

Training
For short-term activities, LEED training may not be required, but for volunteers who are working on long-term assignments, the volunteer coordinator can arrange for tours of LEED projects, organize guest lectures and conduct review and study sessions to ensure students are prepared to support a LEED project.

USGBC Students is the college and university student engagement program of the U.S. Green Building Council. The program was created to help recruit, equip and connect the next generation of leaders to the green building movement and sustainable design industry by empowering students to transform their campuses, careers and communities.

USGBC Students groups are chartered and officially recognized student organizations by their respective colleges and universities.

Visit www.centerforgreenschools.org/usgbc-students
Staff Oversight

A dedicated coordinator is essential to organizing student volunteer efforts. Like the faculty member and internship coordinator who assign LEED project tasks, the volunteer coordinator must work with the project team to align volunteer tasks with the LEED project plan and ensure the quality of student work. LEED experience would be preferred, but may not be required of the volunteer coordinator.

Succession Planning

Volunteer programs that focus on short-term activities will not require succession planning. For longer commitments, the program should establish a protocol for continuing student work. Similar to an internship program, options may include providing LEED training or pairing students with different graduation dates to work in tandem on LEED projects. Volunteer organizations may look to local utilities or other institutions that support sustainability and green initiatives as possible funding sources for the LEED training.

How to Get Started

Green building, architecture, engineering or sustainability clubs on campus, such as USGBC Students groups, are a good place to recruit volunteers to actively engage in green campus activities. Organizations and clubs with committed coordinators or strong leadership structures are recommended for LEED tasks that require a long-term commitment. In some instances, project teams, sustainability directors or capital planning and facilities staff will seek out student groups as they begin planning a LEED project. In many cases, students will take the lead and pursue opportunities by meeting with the capital planning or facilities management staff to determine ways the student groups can participate on LEED projects.

How USGBC Chapters Can Help

The USGBC chapter network connects individuals at the local level to raise awareness of LEED and green building through education, outreach and advocacy. USGBC chapters offer a variety of training resources, including convening LEED study groups, facilitative connections with local green building professionals and education programs.

The Los Angeles USGBC chapter, for example, has partnered with the Los Angeles Community College District to provide LEED training for students interested in working on green building projects. For more information on local USGBC chapters and programs, visit www.usgbc.org/chapters.
PROGRAM PROFILE
University of California, Berkeley
Building Sustainability @ Cal Program

The Building Sustainability @ Cal (BS@C) Program works to reduce the environmental impact of campus buildings and create a culture of sustainability by engaging students in building-specific sustainability efforts, including working on facilities seeking LEED certification.

The BS@C Program is a unique collaboration of undergraduate and graduate students, faculty and staff that seeks to align both the academic and operational aspects of the university. The program has a strong, student-run organizational structure and is housed in the Sustainability in Facilities Services department. Students in the program seek to reduce the environmental impact of campus buildings through internships, coursework and the volunteer group Green Operations (GO!) Team. The student leadership structure has been designed to ensure program continuity by establishing a hierarchy in which students can progress from being volunteers taking classes to paid interns and finally program coordinators.

There are five paid internships, each lasting one year, that are open to students from all disciplines. Interns are chosen through a competitive application process and work in pairs on one building or one topic area across buildings. The buildings in which BS@C students work are either seeking LEED certification or have a sustainability plan of action that has been developed by the students and occupants. Student work is managed by the program’s intern coordinator who assumes responsibility for the students’ assignments, oversees performance and approves timesheets.

Students can also participate on green building projects through course offerings. The semester-long courses are taken for credit and are open to all students.

“When sending the resume of a student assigned through the Building Sustainability @ Cal program to the architect in charge of the on-campus LEED project, the architect was so impressed he asked if the student was looking for a full-time job.”

— Judy Chess, Assistant Director, Green Buildings Program, Sustainability in Facilities Services Department, University of California, Berkeley

FUNDING SOURCES

1st Year:
Campus Refuse & Recycling Services grant

2nd Year:
The Green Initiative Fund (TGIF) grant

3rd Year:
Vice Chancellor’s Facilities Services grant

4th Year:
Vice Chancellor’s Facilities Services grant, TGIF grant to expand the GO! Team and special funding from a department to provide support for LEED for Existing Buildings: Operations & Maintenance certification

Future:
Seeking institutional funding and investigating the fee-for-service model
students, though prerequisites may be required. A student class coordinator manages assignments and two student instruction coordinators are responsible for outlining the green building-related activities and tasks.

A typical BS@C project includes students administering a building occupant survey to ascertain opinions and habits regarding sustainability. The students then perform lighting, waste and water audits. Results from the survey and the audits guide the creation of a sustainability plan of action that identifies both long- and short-term changes that can be made to decrease the building’s environmental impact. Students implement programs or design projects to address the environmental issues outlined in the plan. The audits are based on LEED standards and the resulting sustainability plans of action are submitted to the relevant campus entities to help guide future renovations and sustainability initiatives.

Lessons Learned

- Succession planning is critical if a student program is to be integrated into the long-term strategy for greening a campus.

- Student programs offer effective professional development training and provide participants with the opportunity to build an array of skills, including project management, team building, negotiating, budgeting and human resource management.

- Student programs provide opportunities for facilities management and operations staff to work together with faculty and students.